

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



10 JAN 2005

(43) International Publication Date
12 February 2004 (12.02.2004)

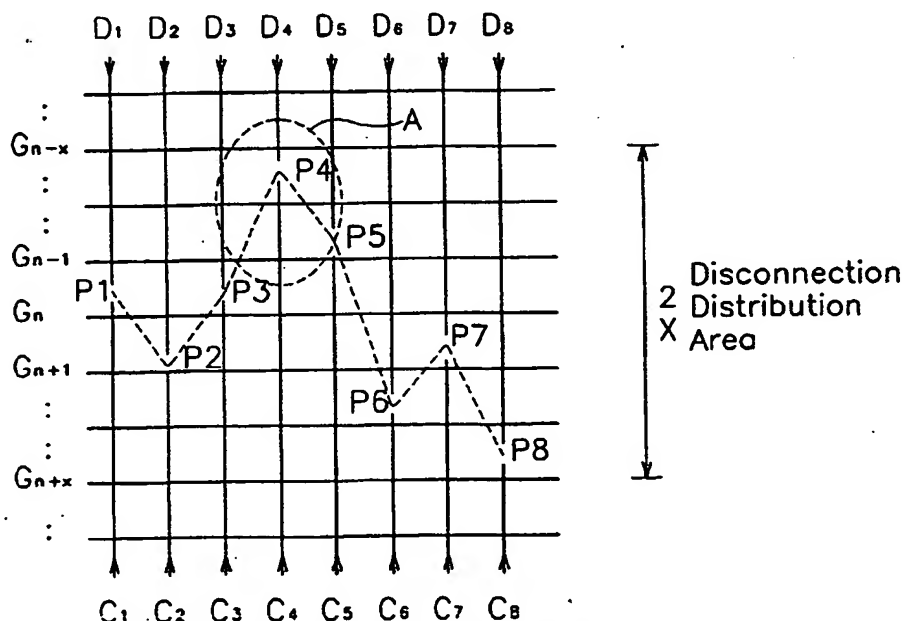
PCT

(10) International Publication Number
WO 2004/013682 A2

- (51) International Patent Classification⁷: G02F (74) Agent: YOU ME PATENT & LAW FIRM; Teheran Bldg., 825-33, Yoksam-dong, Kangnam-ku, Seoul 135-080 (KR).
- (21) International Application Number: PCT/KR2003/001549
- (22) International Filing Date: 31 July 2003 (31.07.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 10-2002-0045815 2 August 2002 (02.08.2002) KR
- (71) Applicant (for all designated States except US): SAM-SUNG ELECTRONICS CO., LTD. [KR/KR]; 416 Mae-tan-dong, Paldal-ku, Suwon-city, Kyungki-do 442-370 (KR).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): KIM, Jong-Seon [KR/KR]; Dongbu Apt. 102-301, Dokgok-dong, Pyeong-taek-city, Kyungki-do 459-801 (KR).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published: — without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: LIQUID CRYSTAL DISPLAY AND DRIVING METHOD THEREOF



(57) Abstract: An LCD includes a plurality of upper, middle, and lower gate lines transmitting scanning signals provided on upper, middle, and lower areas, respectively, a plurality of pairs of upper and lower data lines transmitting data voltages, and a plurality of pixels connected to the gate lines and the data lines. The pixels are arranged in a matrix and include upper, middle, and lower pixels provided on the upper, the middle, and the lower areas, respectively. Each pair of upper and lower data lines are separated from each other at a disconnection, and the disconnections of the upper and the lower data lines are randomly distributed on the middle area.

WO 2004/013682 A2